UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2004/00288

August 16, 2004

Lawrence C. Evans
Chief, Regulatory Branch
Department of the Army
Portland District, Corps of Engineers
Post Office Box 2946
Portland, Oregon 97208-2946

Re: Endangered Species Act Section 7 Conference Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation on the Hinkle Creek Bank Revetment Project, Douglas County, Oregon (Corps No. 200300371)

Dear Mr. Evans:

Enclosed is a conference opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) and the section 305 of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) on the effects of issuing a permit under section 404 of the Clean Water Act to authorize Douglas County Public Works's bank revetment project on Hinkle Creek in Douglas County, Oregon. The Corps of Engineers (Corps) determined that the proposed action is likely to adversely affect Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch),* a species proposed as threatened under the ESA, and requested formal conferencing for these species. NOAA Fisheries concludes in this Opinion that the proposed action is not likely to jeopardize the continued existence of OC coho salmon.

Pursuant to section 7 of the ESA, NOAA Fisheries has included reasonable and prudent measures with non-discretionary terms and conditions that NOAA Fisheries believes are necessary and appropriate to minimize the potential for incidental take associated with this project. However, this incidental take statement does not become effective for OC coho until that species is listed and this conference opinion is adopted as a biological opinion. If NOAA Fisheries reviews the proposed action and finds that no significant changes have been made in the action as proposed or in the information used in the conference, NOAA Fisheries will confirm this conference opinion as a biological opinion on the project and no further section 7 consultation will be necessary.

An essential fish habitat consultation is also enclosed pursuant to section 305(b) of the MSA and its implementing regulations (50 CFR Part 600). As required by section 305(b)(4)(A) of the

MSA, this consultation includes conservation recommendations that NOAA Fisheries believes will avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from the proposed action. As described in the enclosed consultation, 305(b)(4)(B) of the MSA requires that a Federal action agency must provide a detailed response in writing within 30 days after receiving an EFH conservation recommendation.

Questions regarding this letter should be directed to Tom Halferty of my staff in the Oregon State Habitat Office at 541.957.3378.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Merina Christoffersen, COE
Jim Brick, ODFW

Endangered Species Act - Section 7 Consultation
Conference Opinion

&

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

Hinkle Creek Bank Revetment Project,
Douglas County, Oregon
(Corps No. 200300371)

Agency:	U.S. Army Corps of Engineers
Consultation Conducted By:	National Marine Fisheries Service, Northwest Region
Date Issued:	August 16, 2004
Issued by:	for Michael R Crouse D. Robert Lohn Regional Administrator
Refer to:	**2004/00288**

TABLE OF CONTENTS

INTRODUCTION

Background

On March 15, 2004, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a letter and biological assessment (BA) from the Portland District of the U.S. Army Corps of Engineers (Corps) requesting formal consultation on the effects of issuing a permit under section 404 of the Clean Water Act. The request for formal consultation was made pursuant to sections 7(a)(2) of the Endangered Species Act (ESA) and 305(b)(2) of the Magnuson-Stevens Fishery Management and Conservation Act (MSA). The proposed permit would authorize Douglas County Public Works (DCPW) to revet 50 linear feet of bank on Hinkle Creek. Besides describing the proposed action and the likely effects on aquatic resources, the Corps found that the revetment project is likely to adversely affect Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*), a species proposed for listing under the ESA.

Consultation History

In the fall of 2003, representatives from NOAA Fisheries and the Corps accompanied the applicant, DCPW, on a visit to the site as part of preconsultation. Several design alternatives were recommended which resulted in the application received by the Corps requesting 40 feet of revetment being modified to incorporate four root wads into the base of the revetment. In June, 2004, NOAA Fisheries staff again visited the site and discovered that further erosion had occurred over the winter and had affected an additional 10 feet of bank. In a conference call on June 29, 2004, with the Corps, DCPW, and NOAA Fisheries, this and other concerns were discussed. As a result, on July 1, 2004, DCPW submitted to the Corps an updated design drawing specifying 50 feet of revetment with five root wads incorporated into the base.

Proposed Action

The proposed action is the issuance of a Corps permit to DCPW to construct bank stabilization within Hinkle Creek, tributary to Calapooya Creek, a tributary of the mainstem Umpqua River. The proposed project involves placement of class 700 large diameter rock and root wads with boles attached along an approximately 50 foot length of scouring and eroded county road fill slope beside Hinkle Creek. The site is just upstream of a bridge crossing the stream. Woody vegetation such as willow and alder trees will be planted in topsoil above the rock.

The Corps described project design features (PDF) in their BA that will be implemented as conservation measures to minimize impacts to OC coho salmon and their essential habitat. DCPW detailed other conservation measures in their permit application to the Corps. Additionally, further conservation measures were described by DCPW in a conference call with the Corps and NOAA Fisheries on June 29, 2004, with resulting design modifications submitted in writing by the applicant to the Corps on July 1, 2004. In total, these PDFs include:

1. Conducting instream work during the Oregon Department of Fish and Wildlife (ODFW) in-water work window (July 1 to September 15).
2. The work site will be isolated from the active channel with a coffer dam of sand bags to minimize turbidity. The downstream end will be open to the channel to allow any fish isolated by the coffer dam to escape.
3. Turbidity will be further minimized by covering the bank with geotextile fabric and placement of individual rocks with an excavator bucket with thumb attached to allow for careful manipulation of the rock. No excavation of the streambed will occur.
4. Equipment used for the placement of rock will work from the top of the bank (from the existing paved county road). No additional access road will need to be constructed. No equipment will enter the stream at any time.
5. A minimum of five root wads with boles attached will be incorporated into the base of the revetment on top of a layer of key rocks with the root faces vertical, laying parallel to the stream, and touching the bottom of the channel. The root wads will be a minimum of 12 inches diameter (bole) with intact and untrimmed root wad fans (about 4 to 6 feet in diameter) with the boles extending back through the rock about five feet. As the boles will be covered with tons of rock, no cable will be used to further secure them.
6. Topsoil will be placed at the top of the slope along the full length of the rock revetment, seeded with native grasses, and planted with willow and alder trees.

Description of the Action Area

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area (project area) involved in the proposed action (50 CFR 402.02). For this consultation, NOAA Fisheries defines the action area as the immediate project site, and 100 feet downstream, at river mile 0.08 of Hinkle Creek along the Hinkle Creek Spur Road No. 281A at Milepost 0.04, near Sutherlin, in Douglas County, Oregon, just upstream of the Hinkle Creek bridge No. 19C419. This action area occurs within the SE quarter of Section 31, Township 24S, Range 3W.

ENDANGERED SPECIES ACT

Conference Opinion

This Opinion considers the potential effects of the proposed action on OC coho salmon, which occur in the proposed action area. OC coho salmon were listed as threatened under the ESA on August 10, 1998 (63 FR 42587) and protective regulations were issued on July 10, 2000 (65 FR 42422).

In September 2001, in the case *Alsea Valley Alliance v. Evans*, U.S. District Court Judge Michael Hogan struck down the 1998 ESA listing of OC coho salmon and remanded the listing decision to NOAA Fisheries for further consideration. In November 2001, the Oregon Natural Resources Council appealed the District Court's ruling. Pending resolution of the appeal, in

December 2001, the Ninth Circuit Court of Appeals stayed the District Court's order that voided the OC coho listing. While the stay was in place, the OC coho evolutionarily significant unit (ESU) was again afforded the protections of the ESA.

On February 24, 2004, the Ninth Circuit dismissed the appeal in *Alsea*. On June 15, 2004, the Ninth Circuit returned the case to Judge Hogan and ended its stay. Judge Hogan's order invalidating the OC coho listing is back in force. Accordingly, OC coho are now not listed, and ESA provisions for listed species, such as the consultation requirement and take prohibitions, do not apply to OC coho salmon.

In response to the *Alsea* ruling, NOAA Fisheries released its revised policy for considering hatchery stocks when making listing decisions on June 3, 2004 (69 FR 31354). NOAA Fisheries completed a new review of the biological status of OC coho salmon, and applying the new hatchery listing policy, proposed to list OC coho salmon as a threatened species on June 14, 2004 (69 FR 33102). NOAA Fisheries must make a final decision on the proposed OC coho salmon listing by June 14, 2005.

The objective of this Opinion is to determine whether the proposed action is likely to jeopardize the continued existence of OC coho salmon. This consultation is conducted pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 CFR 402.

Biological Information

OC Coho Salmon

The OC coho salmon ESU is identified as all naturally-spawned populations of coho salmon in coastal streams south of the Columbia River and north of Cape Blanco (60 FR 38011, July 25, 1995). The OC coho ESU has been assessed in three previous status reviews (Weitkamp *et al.* 1995, NMFS 1996a, 1996b, 1997). In the 1995 status review (Weitkamp *et al.* 1995), the Biological Review Team (BRT) considered evidence from many sources to identify ESU boundaries in coho populations from Washington to California. For the most part, evidence from physical environment, ocean conditions/upwelling patterns, marine and coded wire tag recovery patterns, coho salmon river entry and spawn timing as well as estuarine and freshwater fish and terrestrial vegetation distributions were the most informative to the ESU delineation process. Genetic information was used for an indication of reproductive isolation between populations and groups of populations. Based on this assessment, six ESUs were identified, including the OC coho ESU, which includes naturally-spawning populations in Oregon coastal streams north of Cape Blanco, to south of the Columbia River.

In 1997, there were extensive survey data available for coho salmon in this region. Overall, spawning escapements had declined substantially during the century, and may have been at less than 5% of their abundance in the early 1900s. Average spawner abundance had been relatively constant since the late 1970s, but pre-harvest abundance had declined. Average recruits-per-spawner may also have declined. Coho salmon populations in most major rivers

appeared to have had heavy hatchery influence, but some tributaries may have been sustaining native stocks.

For this ESU, information on trends and abundance were better than for the more southerly ESUs. Main uncertainties in the assessment included the extent of straying of hatchery fish, the influence of such straying on natural population trends and sustainability, the condition of freshwater habitat, and the influence of ocean conditions on population sustainability. Total average (5-year geometric mean) spawner abundance for this ESU in 1996 was estimated at about 52,000. Corresponding ocean run size for the same year was estimated to be about 72,000; this corresponds to less than one-tenth of ocean run sizes estimated in the late 1800s and early 1900s, and only about one-third of those in the 1950s (ODFW 1995a). Total freshwater habitat production capacity for this ESU was estimated to correspond to ocean run sizes between 141,000 under poor ocean conditions, and 924,000 under good ocean conditions (Oregon Coastal Salmon Restoration Initiative Science Team 1996b). Abundance was unevenly distributed within the ESU at this time, with the largest total escapement in the relatively small Mid/South Coast Gene Conservation Group and lower numbers in the North/Mid Coast and Umpqua Gene Conservation Groups.

Trend estimates using data through 1996 showed that for all three measures (escapement, run size, and recruits-per-spawner), long-term trend estimates were negative. More recent escapement trend estimates were positive for the Umpqua and Mid/South Coast Monitoring Areas, but negative in the North/Mid Coast. Recent trend estimates for recruitment and recruits-per-spawner were negative in all three areas, and exceed 12% annual decline in the two northern areas. Six years of stratified random survey population estimates showed an increase in escapement and decrease in recruitment.

To put these data in a longer term perspective, ESU-wide averages in 1996 that were based on peak index and area under the curve escapement indices, showed an increase in spawners up to levels of the mid-to-late 1980s, but much more moderate increases in recruitment. Recruitment remained only a small fraction of average levels in the 1970s. An examination of return ratios showed that spawner-to-spawner ratios had remained above replacement since the 1990 brood year as a result of higher productivity of the 1990 brood year and sharp reductions in harvest for the subsequent broods. As of 1996, recruit-to-spawner ratios for the 1991 to 1994 broods were the lowest on record, except for 1988 and, possibly, 1984. The 1997 BRT considered risk of extinction for this ESU under two scenarios: first, if present conditions and existing management continued into the foreseeable future and, second, if certain aspects of the Oregon Plan for Salmon and Watersheds (1997) relating to harvest and hatchery production were implemented.

With respect to habitat, the BRT had two primary concerns. First, that the habitat capacity for coho salmon within this ESU has significantly decreased from historical levels, and second, that the Nickelson and Lawson (1998) model predicted that, during poor ocean survival, only high quality habitat is capable of sustaining coho populations, and subpopulations dependent on medium and low quality habitats would be likely to go extinct. Both of these concerns caused the BRT to consider risks from habitat loss and degradation to be relatively high for this ESU.

In 1997, the BRT concluded that, assuming that 1997 conditions continued into the future (and that proposed harvest and hatchery reforms were not implemented), this ESU was not at significant short-term risk of extinction, but that it was likely to become endangered in the foreseeable future. A minority felt that the ESU was not likely to become endangered. Of those members who concluded that this ESU was likely to become endangered, several expressed the opinion that it was near the border between this and a 'not at risk' category.

The BRT generally agreed that implementation of the harvest and hatchery proposals of the Oregon Plan for Salmon and Watersheds (1997) would have a positive effect on the status of the ESU, but the BRT was about evenly split as to whether the effects would be substantial enough to move the ESU out of the 'likely to become endangered' category. Some members felt that, in addition to the extinction buffer provided by the estimated 80,000 naturally-produced spawners in 1996, the proposed reforms would promote higher escapements and alleviate genetic concerns so that the ESU would not be at significant risk of extinction or endangerment. Other members saw little reason to expect that the hatchery and harvest reforms by themselves would be effective in reducing what they viewed as the most serious threat to this ESU: declining recruits-per-spawner.

If the severe declines in recruits-per- spawner of natural populations in this ESU were partly a reflection of continuing habitat degradation, then risks to this ESU might remain high even with full implementation of the hatchery and harvest reforms. While harvest and hatchery reforms may substantially reduce short-term risk of extinction, habitat protection and restoration were viewed as key to ensuring long-term survival of the ESU, especially under variable and unpredictable future climate conditions. The BRT therefore concluded that these measures would not be sufficient to alter the previous conclusion that the ESU is likely to become endangered in the foreseeable future.

The Oregon Plan for Salmon and Watersheds (1997) is the most ambitious and far-reaching program to improve watersheds and recover salmon runs in the Pacific Northwest. It is a voluntary program focused on building community involvement, habitat restoration, and monitoring. All state agencies with activities affecting watersheds are required to evaluate their operations with respect to salmon impacts and report on actions taken to reduce these impacts to the Governor on a regular basis. The original Oregon Plan was written in 1997, so the Plan has been in operation for about 7 years. As a result of the plan, watershed councils across the state have produced watershed assessments of limiting factors for anadromous salmonids on both public and private land.

The State of Oregon has dedicated approximately $20 million per year to implement restoration projects and is developing a system to link project development with whole-watershed assessments. The Oregon Department of Environmental Quality and the Oregon Department of Agriculture are implementing regulatory mechanisms to reduce non-point-source pollution. If these efforts are successful Oregon could see a widespread improvement in water quality. Nonetheless, reporting of watershed assessment results, limiting factors, and identification of actions to be taken or progress made in addressing these limiting factors can be improved. While

this is a significant recovery effort in the Pacific Northwest, and an extensive, coordinated monitoring program is in place, measurable results of the program will take years or decades to materialize.

The regime shift in 1976 was the beginning of an extended period of poor marine survival for coho salmon in Oregon. Conditions worsened in the 1990s, and hatchery survival reached a low of 0.006 adults per smolt in 1997 (1996 ocean entry). Coastal hatcheries appear to have fared even worse, although adult counts at these facilities are often incomplete, biasing these estimates low. Following an apparent shift to a more productive climate regime in 1998 marine survival has started to improve, reaching 0.05 for adults returning in 2001. The Pacific Decadal Oscillation had been in a cold, productive phase for about 4 years and in August 2002 reversed, indicating a warm, unproductive period. This reversal may be short-lived; the Pacific Decadal Oscillation historically has shown a 20 to 60 year cycle.

A long-term understanding of the prospects for OC coho can be constructed from a simple conceptual model incorporating a trend in habitat quality and cyclical ocean survival (Lawson 1993). Short-term increases in abundance driven by marine survival cycles can mask longer-term downward trends resulting from freshwater habitat degradation or longer-term trends in marine survival that may be a consequence of global climate change. Decreases in harvest rates can increase escapements and delay ultimate extinction. Harvest rates have been reduced to the point where no further meaningful reductions are possible. The current upswing in marine survival is a good thing for OC coho, but will only provide a temporary respite unless other downward trends are reversed.

This ESU continues to present challenges to those assessing extinction risk. The BRT found several positive features compared to the previous assessment in 1997. Adult spawners for the ESU in 2001 and 2002 exceeded the number observed for any year in the past several decades, and pre-harvest run size rivaled some of the high values seen in the 1970s. Some notable increases in spawners have occurred in many streams in the northern part of the ESU, which was the most depressed area at the time of the last status review evaluation. Hatchery reforms have continued, and the fraction of natural spawners that are first-generation hatchery fish has been reduced in many areas compared to highs in the early to mid 1990s.

On the other hand, the recent years of good returns were preceded by three years of low spawner escapements—the result of three consecutive years of recruitment failure, in which the natural spawners did not replace themselves the next generation, even in the absence of any directed harvest. These three years of recruitment failure, which immediately followed the last status review in 1997, are the only such instances that have been observed in the entire time series of data collected for OC coho salmon. Whereas the recent increases in spawner escapement have resulted in long-term trends in spawners that are generally positive, the long-term trends in productivity in this ESU are still strongly negative.

As indicated in the risk matrix results, the BRT considered the decline in productivity to be the most serious concern for this ESU with a moderate risk estimate. With all directed harvest for

these populations already eliminated, harvest management can no longer compensate for declining productivity by reducing harvest rates. The BRT was concerned that if the long-term decline in productivity reflects deteriorating conditions in freshwater habitat, this ESU could face very serious risks of local extinctions during the next cycle of poor ocean conditions. With the cushion provided by strong returns in the last 2 to 3 years, the BRT had much less concern about short-term risks associated with abundance and assigned them a low risk estimate.

A minority of the BRT felt that the large number of spawners in the last few years demonstrate that this ESU is not currently at significant risk of extinction or likely to become endangered. Furthermore, these members felt that the recent years of high escapement, following closely on the heels of the years of recruitment failure, demonstrate that populations in this ESU have the resilience to bounce back from years of depressed runs.

The BRT votes reflected ongoing concerns for the long-term health of this ESU; a majority (56%) of the BRT votes were cast in the 'likely to become endangered' category, with a substantial minority (44%) falling in the 'not likely to become endangered' category. Although the BRT considered the significantly higher returns in recent years to be encouraging, most members felt that the factors responsible for the increases were more likely to be unusually favorable marine productivity conditions than improvements in freshwater productivity. The majority of BRT members felt that to have a high degree of confidence that the ESU is healthy, high spawner escapements should be maintained for a number of years, and the freshwater habitat should demonstrate the capability of supporting high juvenile production from years of high spawner abundance.

The Umpqua River drains approximately 4,900 square miles. The Umpqua River is unique within the OC coho salmon ESU because it has headwaters in the Cascade Mountains, runs through the Coast Range and then enters the Pacific Ocean. No other OC coho salmon river traverses the coast range to the Cascade Mountains. Four populations of coho salmon occur within the Umpqua River (ODFW 1995). They are the Smith River, the Mainstem Umpqua River, the North Umpqua River, and the South Umpqua River. Migrating adults and out-migrating smolts from all populations pass through the action area. The abundance of OC coho salmon in the Umpqua River basin varies by month and life history stage (Table 1).

Table 1. OC Coho Salmon Life History Events for the Umpqua River Basin (Weitkamp 1995, Steelquist 1992). Light shading represents low-level abundance, dark shading represents peak abundance.

	J	F	M	A	M	J	J	A	S	O	N	D
River Entry												
Spawning												
Intragravel Development												
Juvenile Rearing												
Juvenile Out-migration												

Adult OC coho salmon enter the Umpqua River from September through February and migrate up the system to the tributaries. Spawning typically occurs from late November through early February. Juvenile coho salmon spend one year in freshwater before smoltification. During the summer, juveniles typically seek thermal refugia and cover in smaller tributary streams, but may be forced into larger streams and rivers due to declining water discharge in August and September.

Returning Adults and Spawning

ODFW counts all of the OC coho salmon returning to the North Umpqua at a counting station in Winchester dam. Escapement estimates are made for the rest of the Umpqua River basin.

Table 2. Counts and Estimates of Wild Adult OC Coho Salmon Returning to the Umpqua Basin.[1]

	1994	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
North Umpqua River count	1,012	1,162	1,570	1,329	909	1,065	1,506	2,449	3,069
Basin above Elkton estimate	4,485	11,349	9,749	2,233	8,426	6,466	10,395	32,751	35,301
Total	5,497	12511	11,319	3,562	9,335	7,946	11,901	35,200	38,370

ODFW has been doing surveys in Hinkle Creek (ODFW 2004). Reach 1, which includes the action area, consists of the first 1.6 miles of the stream. A falls approximately 4 miles from the

[1] Adapted from ODFW, Annual estimates of wild coho spawner abundance in coastal river basins within the Oregon Coastal ESU, 1990-2002, available online at: http://oregonstate.edu/Dept/ODFW/spawn/coho.htm

mouth is impassable to coho salmon. In 2001, 41 live coho salmon adults and 8 dead spawned out coho salmon carcasses were counted in the reach 1, with 110 live adults and 16 carcasses found from the mouth to the falls. In that same year, 37 coho salmon redds were found in reach 1 and 82 redds from the mouth to the falls.

In 2002, 10 live adults and no carcasses were counted in reach 1 with 34 live adults and one carcass found from the mouth to the falls. In that same year, 11 redds were found in reach 1 and 36 redds from the mouth to the falls.

In 2003, 9 live adults and no carcasses were found in reach 1 with 18 adults and one carcass found up to the falls. In that year, 4 redds were found in reach 1 with 11 from the mouth to the falls.

Thus, in the last three years adult returns and spawning has been declining in the reach of Hinkle Creek that contains the action area at a time their numbers have been increasing in the basin as a whole. However, the proposed in-water work window is July 1 to September 15. During this time period migrating adult spawners will be just beginning to enter the river system and not yet entering the action area. As spawning occurs November through February, adults will not be spawning in the action area during the project implementation.

Juvenile Rearing

The action area is used by juvenile coho salmon year round as rearing habitat.[2] ODFW summer standing crop data for coho salmon juveniles obtained by snorkeling in 2001 found 2,299 in reach 1 with 6,207 in total up to the falls. Data for 2002 includes 1,087 coho salmon juveniles in reach 1 and 4,074 up to the falls. In 2003, 1,021 were found in reach 1 with 3,040 up to the falls. The average density of coho salmon juveniles per square meter from the mouth to the falls was about 7 in 2001, and around 3 for the following two years. Thus salmon coho juveniles are very likely to be present in the action area during project implementation.

Juvenile Outmigration

ODFW has a smolt trap in the action area. Data from the trap was collected in 2002, 2003, and 2004, from early March into June of each year (ODFW 2004). Outmigrating coho salmon smolts from Hinkle Creek were estimated for 2002, 2003, and 2004 at 2428, 1754, and 1019, respectively. Again, these data are consistent with returning adult numbers, redd counts, and summer juvenile snorkeling surveys that the coho salmon population in Hinkle Creek is declining in recent years at a time when the Umpqua basin coho population is increasing based on the data from the North Umpqua River counting station at Winchester Dam (see Table 2). Outmigrating smolts will not be present in the action area at the time of project implementation as the migration begins in February and ends in June.

[2] Conversation with Dave Harris of ODFW at the Umpqua Watershed District Office (June 2004)(describing distribution and abundance of OC coho in Hinkle Creek).

Evaluating Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR 402.02 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the five steps of the consultation regulations and when appropriate combines them with the Habitat Approach (NOAA Fisheries 1999). The steps are as follows: (1) Consider the biological requirements of the listed species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species; and (4) determine whether the species can be expected to survive with an adequate potential for recovery under the effects of the proposed or continuing action, the effects of the environmental baseline, and any cumulative effects, and considering measures for survival and recovery specific to other life stages. In completing this step of the analysis, NOAA Fisheries determines whether the action under consultation, together with all cumulative effects when added to the environmental baseline, is likely to jeopardize the ESA-listed species. If jeopardy is the appropriate determination, then NOAA Fisheries proceeds with step 5. In step 5, NOAA Fisheries may identify reasonable and prudent alternatives (RPAs) for the action that avoid jeopardy, if any exists.

The fourth step above requires a two-part analysis. The first part focuses on the action area and defines the proposed action's effects in terms of the species' biological requirements in that area (*i.e.*, effects on essential habitat features). The second part focuses on the species itself. It describes the action's effects on individual fish, or populations, or both, and places these effects in the context of the ESU as a whole. Ultimately, the analysis seeks to answer the question of whether the proposed action is likely to jeopardize a listed species' continued existence.

Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. The biological requirements are population characteristics necessary for OC coho salmon to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance its capacity to adapt to various environmental conditions, and allow it to become self-sustaining in the natural environment.

For actions that affect habitat, NOAA Fisheries usually describes the habitat portion of a species' biological requirements in terms of a concept called properly functioning condition (PFC). PFC is defined as the sustained presence of natural, habitat-forming processes in a watershed that are necessary for the long-term survival of the species through the full range of environmental variation (NOAA Fisheries 1999). PFC, then, constitutes the habitat component of a species' biological requirements. Survival of OC coho salmon in the wild depends upon the proper

functioning of ecosystem processes, including habitat formation and maintenance. Restoring functional habitats depends largely on allowing natural processes to increase their ecological function, while at the same time removing adverse effects of current practices. For this consultation, the biological requirements are improved habitat characteristics that would function to support successful adult holding and migration, and juvenile rearing, smoltification and outmigration.

The requirements of coho salmon include: Food, flowing water (quantity), high quality water (cool, free of pollutants, high dissolved oxygen concentrations, low sediment content), riparian vegetation, clean spawning substrate, and unimpeded migratory access to and from spawning and rearing areas (adapted from Spence *et al.* 1996).

Environmental Baseline

In step two of NOAA Fisheries' analysis, we evaluate the relevance of the environmental baseline in the action area. Regulations implementing section 7 of the ESA (50 CFR 402.02) define the environmental baseline as the past and present effects of all Federal, state, or private actions and other human activities in the action area. The environmental baseline also includes the anticipated effects of all proposed Federal projects in the action area that have undergone section 7 consultation, and the effects of state and private actions that are contemporaneous with the consultation in progress.

Land uses in the general area include rural residences, agriculture, logging, and road building. The watershed upstream of the action area is dominated by private industrial timberlands with rural residences and small scale agriculture in the floodplain. Hinkle Creek joins Calapooia Creek less than 100 yards downstream from the action area. Calapooia Creek is dominated by larger scale agriculture with some creekside residences. Riparian areas and stream channels in the action area have been damaged by development activities related to these land uses (FEMAT 1993, Botkin *et al.* 1995, OCSRI 1997).

Habitat changes that have contributed to the decline of OC coho salmon in the action area include: (1) Reduced biological, chemical, and physical connectivity between streams, riparian areas, floodplains, and uplands; (2) elevated fine sediment yields; (3) reduced instream large woody debris; (4) loss or degradation of riparian vegetation; (5) altered stream channel morphology; and (6) altered base and peak stream flows (OCSRI 1997). Physical habitat surveys of Hinkle Creek for Reach 1, which contains the action area, found an average wetted width to depth ratio in riffles of 23, about 30 pools per mile (with an average channel width of 28 feet), no pools deeper than one meter, <18% of the area in pools, very few riparian trees greater than 24-inch diameter, and 17% fines in riffle units (ODFW 1993). These values when compared with values from the Matrix of Pathways and Indicators for Western Cascades geology are considered Not Properly Functioning or At Risk (NMFS 1996). Values for large wood in reach 1 were likewise found to be Not Properly Functioning.

Hinkle Creek Spur Road No. 281A crosses Hinkle Creek on Bridge No. 19C419 in the action area. The Hinkle Creek channel just upstream of the bridge has been eroding the road fill away. Riprap has previously been placed at the east footing of the bridge and 25 feet upstream. The 50 feet of the road fill upstream from that is now severely eroded. A near vertical bank begins about 2 feet from the edge of the road pavement and drops about 10 feet down to the channel.

Based on the best available information regarding the current status of OC coho salmon range-wide, the population status, trends, genetics, and the poor environmental baseline conditions within the action area, NOAA Fisheries concludes that the biological requirements of OC coho salmon are not currently being met. The degraded habitat, resulting from agricultural practices, road building, and private industrial timber operations upstream, as well as declining populations of coho salmon in Hinkle Creek over the past three years, indicate many aquatic habitat indicators are not properly functioning within the action area. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of OC coho salmon.

Analysis of Effects

The proposed action consists of placing 50 linear feet of large rock along a bank of Hinkle Creek about five feet into the channel. NOAA Fisheries expects adverse effects to OC coho salmon to occur from: (1) Turbidity, (2) chemical contamination, (3) loss of habitat function, and (4) loss of stream processes.

Turbidity

Potential impacts to listed salmon from the proposed action include both direct and indirect effects from turbidity. Potential direct effects include mortality from exposure to turbidity. Also, elevated turbidity may cause behavioral changes (Sigler *et al.* 1984, Berg and Northcote 1985) during riverbank habitat alterations. Potential indirect effects include alteration of invertebrate communities and adverse affects to primary and secondary productivity (Spence *et al.* 1996).

The effects of suspended sediment and turbidity on fish are reported in the literature as ranging from beneficial to detrimental. Elevated turbidity has been reported to enhance cover conditions, reduce piscivorous fish/bird predation rates, and improve survival. Elevated turbidity has also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of turbidity on fish are the season, frequency, and the duration of exposure, not just the turbidity concentration.

For the proposed project, localized increases of turbidity during in-water work may displace fish in the project area and disrupt normal behavior. The probability of direct mortality from turbidity is expected to be low because the worksite will be separated from the direct impact of the streamflow with a sandbag coffer dam, no excavation of the streambed will occur (no construction of a toe trench), and the rocks will be individually placed with an excavator bucket with thumb allowing for careful placement rather than dumped in mass from the top of the bank.

It is likely that some turbidity will be released to the stream when the coffer dam is set up and taken down. As well, some turbidity will likely escape the enclosure during rock placement since it will be open to the channel at the lower end. Because the volume of water in the Hinkle Creek is large relative to the area of impact, increases in turbidity are expected to be measurable no more than 100 feet downstream. The probability of injuries to OC coho salmon are expected to be low because turbidity should be localized (less than 100 feet) and brief (a few hours within a few days). Likewise, the indirect effects of turbidity to the invertebrate community and primary and secondary productivity are expected to be minimal.

Chemical Contamination

As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. Operation of back-hoes, excavators, and other equipment requires the use of fuel, lubricants, *etc.*, which, if spilled into the channel of a waterbody or into the adjacent riparian zone, can injure or kill aquatic organisms. Petroleum-based contaminants, such as fuel, oil, and some hydraulic fluids, contain poly-cyclic aromatic hydrocarbons (PAHs), which can be acutely toxic to salmonids at high levels of exposure and can also cause chronic lethal and acute and chronic sublethal effects to aquatic organisms (Neff 1985, Hatch and Burton 1999). The potential for a chemical spill with the proposed project is minimal because of the limited area of impact (approximately 50 feet) and the limited time of construction (about a week). Also, no heavy equipment will enter the channel, but rather be above on the paved road where spills can be cleaned up before they flow down the bank. However, contamination is still possible if a hydraulic hose were to burst on the excavator arm.

Loss of Habitat Function

The use of rock riprap to stabilize streams can substantially alter both site conditions and adjacent streambed and streambank habitat, thereby significantly reducing suitability of the habitat for salmonids. The use of rock riprap to stop bank erosion by its nature tends to change streambed and streambank characteristics, and can effectively change the physical processes that maintain a dynamic equilibrium of stream system form and function. The use of root wads in the project will help alleviate that alteration.

A comparative review of effects of riprap (Schmetterling 2001) has indicated that fish densities at stream locations with riprap banks are reduced as compared to areas with natural banks. This is true even when compared to actively eroding cut banks (Michny and Deibel 1986, Schaffter *et al.* 1983). The use of riprap either results in site characteristics that limit suitability for fish at various life stages (Beamer and Henderson 1998, Peters *et al.* 1998, Li *et al.* 1984, North *et al.* 2002), or perpetuates detrimental conditions that may restrict or limit fish production, such as channelizing the stream (Knudson and Dilley 1987). Even when rock may contribute to habitat diversity within the alluvial stream system, at the project site habitat complexity is simplified and beneficial biological response is of limited duration with greater variability (Schmetterling 2001, Beamer and Henderson 1998, Peters *et al.* 1998). The incorporation of root wads into the base of the revetment will moderate these effects by providing complexity and habitat features.

The use of rock riprap effectively changes the localized hydraulics, substrate, and available food and cover for fish at stream sites where it is used. There is an indication that the flow regimes created by rock riprap significantly disrupt juvenile fish. Juvenile fish are associated with lower velocity flows at the streambed interface, holding for food, finding potential hiding places in the gravels, and/or avoiding larger predatory fish in deeper waters. Rock riprap can disrupt flows, reduce food delivery, and create difficult swimming for smaller fish (Michny and Deibel 1986, Schaffter *et al.* 1983). The root wads will create complexity, lower flow velocities behind them, and provide hiding places for both juvenile salmonids and the invertebrate species they prey upon thus greatly reducing the detrimental effects of riprap alone.

Riprap provides a simplified flow modulator for a limited period of time. Complex large wood associated with banklines, even at riprap banks, demonstrate more flow modulation over greater time frames at different water elevations, as well as providing the small intricate space for juveniles to escape predation (Peters *et al.* 1998, Beamer *et al.* 1998). In general, juveniles tend to hug the banks during winter and spring (seeking refuge from higher flows and food and cover) and tend to move to the main channel during summer. Adults tend to be more oriented to the deep channel, and utilize eddy lines and flow deflectors (Li *et al.* 1984). Where more natural bankline features occur, and shallow water gravel benches or large complex wood deposits have been either maintained or incorporated into riprap, fish densities are improved (Beamer and Henderson 1998, Peters *et al.* 1998, Michny and Deibel 1986, Schaffter *et al.* 1983).

For the proposed project, 50 feet of streambank will be armored. The loss of habitat function will be minimized by incorporating five rootwads with boles attached into the riprap at the base where it interacts with the stream to provide a woody face to the entire length of the revetment. Flow will be modulated, hiding places from predators will be provided, and habitat for prey species created. Therefore, negative effects from the proposed project will be minimized and beneficial effects will accrue while the wood lasts.

Loss of Stream Processes

Riprap not only modifies the streambed and streambank habitat, but as its primary purpose, it stops natural stream processes that maintain a functioning stream system. By "fixing" the stream, rock riprap limits habitat formation and transitions that result from dynamic stream processes. Stream migration, channel changes, flooding, ground water interchange, gravel supply, and large wood supply are significant elements of natural stream processes that can be impacted by riprap. It is generally understood that vegetated stream edges, floodplains, and riparian areas contribute to supporting fish and the stream system as a whole.

Stream erosion and adjustments are natural processes for which fish have adapted. Stabilizing banks with rock riprap fixes the stream in place, and limits any adjustment processes and/or formation of natural stream features. Channel migration results in varying water depths, varying size in streambed substrate, and stream habitat features such as small pools and cover from root or large wood. In-channel structure is formed from deposits of large wood or log jams and roots or fallen trees from riparian areas. Juvenile salmon will use these habitats for feeding. Shallow

water areas and small structural elements that create localized eddy currents can provide space for juveniles to hide and avoid predation.

The proposed action will limit natural stream processes, but if the proposed project is not implemented the Hinkle Creek Spur Road No. 281A will still be there to limit stream processes. Because of this, the project will not result in a significant change in stream channel processes or potential.

Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." Other activities within the watershed have the potential to impact fish and habitat within the action area.

NOAA Fisheries is not aware of any specific future non-federal activities within the action area that would cause greater effects to listed species than presently occurs. The action area and areas in the watershed upstream and downstream from the action area include tracts of private lands. Land use on these non-federal lands include rural development, agricultural, and commercial forestry. Chemical fertilizers or pesticides are used on many of these lands, but no specific information is available regarding their use. NOAA Fisheries does not consider the rules governing timber harvests, agricultural practices, and rural development on non-federal lands within Oregon to be sufficiently protective of watershed, riparian, and stream habitat functions to support the survival and recovery of listed species. Therefore, these habitat functions likely are at risk due to future activities on non-federal forest and agricultural lands within the basin.

Between 1990 and 2000, the human population in Douglas County increased by 6.1%.[3] Thus, NOAA Fisheries assumes that future private and state actions will continue within the action area, increasing as population density rises. As the human population in the county continues to grow, demand for actions similar to the proposed project likely will continue to increase as well. Each subsequent action may have only a small incremental effect, but taken together they may have a significant effect that would further degrade the watershed's environmental baseline and undermine the improvements in habitat conditions necessary for listed species to survive and recover.

Conclusion

The fourth step in NOAA Fisheries' jeopardy analysis is to decide whether the proposed action, considering the above factors, is likely to appreciably reduce the likelihood of the species' survival and recovery in the wild. For the jeopardy determination, NOAA Fisheries uses the

[3] U.S. Census Bureau, State and County Quickfacts: Douglas County, Oregon. Available online at http://quickfacts.census.gov/qfd/states/41/41019.html

consultation regulations and the Habitat Approach (NOAA Fisheries 1999) to come to a conclusion about whether actions would further degrade the environmental baseline or hinder attainment of proper functioning conditions at a spatial scale relevant to the listed ESU.

After reviewing the current status of OC coho salmon, the environmental baseline for the action area, the effects of the proposed action and its cumulative effects, NOAA Fisheries has determined that the Hinkle Creek Bank Revetment Project, as proposed, is not likely to jeopardize the continued existence of this species. These conclusions were based on the following considerations: (1) Large woody debris will be incorporated into the base of the revetment; (2) excavation of the streambed will not occur, nor will heavy equipment enter the streambed; (3) rocks will be individually placed rather than dumped in mass from above; and (4) the work site will be isolated from flow, and any turbid water from the work site that flows into Hinkle Creek will be short-term and local.

This concludes conferencing on OC coho salmon for the effects of the Hinkle Creek Bank Revetment Project. The Corps may ask NOAA Fisheries to confirm this conference opinion as a biological opinion issued through formal consultation if the species is listed in the future. The request must be in writing. If NOAA Fisheries reviews the proposed action and finds that no significant changes have been made in the action as proposed or in the information used in the conference, NOAA Fisheries will confirm this conference opinion as a biological opinion on the project and no further section 7 consultation will be necessary.

Reinitiation of Consultation

Reinitiation of formal consultation is required and shall be requested by the Federal agency or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) If the amount or extent of taking specified in the incidental take statement is exceeded; (b) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) if the identified action is subsequently modified in a manner that has an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) if a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16).

To reinitiate consultation, contact the Oregon State Office Habitat Office of NOAA Fisheries and refer to NOAA Fisheries #: 2004/00288.

Incidental Take Statement

The ESA at section 9 [16 USC 1538] prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by section 4(d) rule [50 CFR 223.203]. Take is defined by the statute as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." [16 USC 1532(19)] Harm is defined by regulation as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by

significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering." [50 CFR 222.102] Harass is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering." [50 CFR 17.3] Incidental take is defined as "takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant." [50 CFR 402.02] The ESA at section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions specified in a section 7(b)(4) incidental take statement [16 USC 1536].

The incidental take statement included in this conference opinion does not become effective until NOAA Fisheries adopts this conference opinion as a biological opinion, after the listing is final. Until the time that the species is listed, the prohibitions of the ESA do not apply.

Amount or Extent of Take

Juvenile OC coho salmon are expected to be present in the action area during construction. NOAA Fisheries anticipates that the actions covered by this Opinion are reasonably certain to result in incidental take of OC coho salmon because of potential adverse effects from increased sediment levels, chemical contamination, loss of habitat function, loss of stream processes, and the potential for direct incidental take during in-water work. Incidental take will most likely occur in the form of "harm" or habitat modification that interferes with normal behavioral patterns, including those mentioned above. Despite the use of the best available information, estimating the number of fish that might be injured or killed by habitat modifying activities is difficult, if not impossible. In such circumstances, the anticipated amount of take is characterized as "unquantifiable."

For those consultations for which incidental take is unquantifiable, NOAA Fisheries estimates the expected level of incidental take in terms of the extent of take allowed. Therefore, NOAA Fisheries limits the extent of take to injury and death of OC coho salmon due to loss of rearing habitat caused by loss of stream and habitat functions displaced or destroyed by the 50-foot revetment. Incidental take occurring beyond the 50 feet of habitat lost to the revetment is not authorized by this consultation.

Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be carried out so that they become binding conditions for the incidental take exemption in section 7(a)(2) to apply. The Corps has the continuing duty to regulate the activities covered in this incidental take statement. If the Corps fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms added to the document authorizing this action, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. NOAA Fisheries believes that the following reasonable

and prudent measures are necessary and appropriate to minimize the likelihood of take of listed fish resulting from implementation of this Opinion.

The Corps shall:

1. Ensure completion of a comprehensive monitoring and reporting program to confirm that this Opinion is meeting its objective of minimizing take from permitted activities.

2. Minimize incidental take from construction-related activities by applying conditions that require construction, operation, and maintenance actions with minimum harm to aquatic and riparian systems.

3. Minimize the likelihood of incidental take from in-water work by ensuring that in-water work areas are protected from the direct force of flowing water.

4. Minimize the amount and extent of take from loss of instream habitat by implementing measures to minimize impacts to riparian and instream habitat, or where impacts are unavoidable, to replace or restore lost riparian and instream functions.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity.

1. To implement reasonable and prudent measure #1 (monitoring), the Corps shall ensure that:

   a. Salvage notice. The following notice is included as a permit condition.

> NOTICE. If a sick, injured or dead specimen of a threatened or endangered species is found, the finder must notify the Roseburg Field Office of NOAA Office for Law Enforcement at 541.957.3388. The finder must take care in handling of sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.

b. Written planning requirements. Before beginning any work below bankfull elevation,[4] the permittee will provide a copy of the written plans for site restoration and pollution and erosion control to the Oregon State Habitat Office of NOAA Fisheries at the following address. Plan requirements are described below.

Director, Oregon State Habitat Office
Habitat Conservation Division
National Marine Fisheries Service
Attn: 2004/00288
525 NE Oregon Street
Portland, OR 97232

c. Implementation monitoring report required. The permittee submits an implementation monitoring report to the Corps and to NOAA Fisheries, at the address above, within 120 days of completing all in-water work. The monitoring report will describe the permittee's success meeting his or her permit conditions.

d. Implementation monitoring report contents. The monitoring report will include the following information.

i. Project identification
   (1) Permittee name, permit number, and project name.
   (2) Project location, including any compensatory mitigation site(s), by 6th field HUC and by latitude and longitude as determined from the appropriate USGS 7-minute quadrangle map.
   (3) Corps contact person.
   (4) Starting and ending dates for work completed.

ii. Habitat conditions. Photos of habitat conditions at the project site before, during, and after project completion.[5]
   (1) Include general views and close-ups showing details of the project and project area, including pre- and post construction.
   (2) Label each photo with date, time, project name, photographer's name, and a comment about the subject.

iii. Site restoration.
   (1) The name and address of the party(s) responsible for meeting each component of the site restoration.
   (2) Performance standards for determining compliance.

[4] 'Bankfull elevation' means the bank height inundated by a 1.5 to 2-year average recurrence interval and may be estimated by morphological features such average bank height, scour lines and vegetation limits.

[5] Relevant habitat conditions may include characteristics of channels, eroding and stable streambanks in the project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually discernable environmental conditions at the project area, and upstream and downstream from the project.

(3) Any other pertinent requirements such as financial assurances, real estate assurances, monitoring programs, and the provisions for short and long-term maintenance of the restoration.
(4) Planting composition and density.
(5) A plan to inspect and, if necessary, replace failed plantings for five years.
(6) A provision for Corps certification that all action necessary to carry out each component of the restoration is completed, and that the performance standards are achieved.

iv. Project data.
(1) Pollution control. A summary of pollution and erosion control inspections, including any erosion control failure, contaminant release, and correction effort.
(2) Isolation of in-water work area.
(a) Methods of work area isolation and take minimization.
(b) Stream conditions before, during and within one week after completion of work area isolation.
(c) Any incidence of observed injury or mortality of listed species.
(3) Site restoration. Photo or other documentation that site restoration performance standards were met.

e. Reinitiation contact. To reinitiate consultation, contact the Oregon State Habitat Office of NOAA Fisheries, at the address above.

2. To implement reasonable and prudent measure #2 (construction-related activities), the Corps shall require the following:

a. Minimum area. Confine construction impacts to the minimum area necessary to complete the project.
b. Preconstruction activity. Complete the following actions before significant[6] alteration of the project area.
i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary. Survey and mark the OHWM at the project site before commencement of work.
ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite.
(1) A supply of sediment control materials (*e.g.*, silt fence, straw bales[7]).

[6] 'Significant' means an effect can be meaningfully measured, detected or evaluated.

[7] When available, certified weed-free straw or hay bales will be used to prevent introduction of noxious weeds.

(2) An oil-absorbing, floating boom.

iii. Temporary erosion controls. All temporary erosion controls will be in-place and appropriately installed downslope of project activity within the riparian area until site restoration is complete.

c. Site preparation. Conserve native materials for site restoration.
   i. If possible, leave native materials where they are found.
   ii. If materials are moved, damaged, or destroyed, replace them with a functional equivalent during site restoration.
   iii. Stockpile any large wood,[8] native vegetation, weed-free topsoil, and native channel material displaced by construction for use during site restoration.

d. Earthwork. Complete earthwork, including excavation, as quickly as possible.
   i. Site stabilization. Stabilize all disturbed areas, including obliteration of temporary roads, following any break in work unless construction will resume within four days.
   ii. Source of materials. Obtain boulders, rock, woody materials and other natural construction materials used for the project outside the riparian area.

e. Cessation of work. Cease project operations under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.

f. Timing of in-water work. Complete all work below the OHWM between July 1 and September 15, unless otherwise approved in writing by NOAA Fisheries. The applicant shall notify the Corps and NOAA Fisheries at least one week before the start of work below the OHWM.

g. Fish passage. Provide passage for any adult or juvenile salmonid species present in the project area during construction, unless otherwise approved in writing by NOAA Fisheries, and after construction for the life of the project.

h. Pollution and Erosion Control Plan. Prepare and carry out a written pollution and erosion control plan to prevent pollution caused by surveying or construction operations. Submit a copy of the written plan to the Corps and to the Oregon State Habitat Office of NOAA Fisheries, at the address above, before beginning work below bankfull elevation.
   i. Plan Contents. The pollution and erosion control plan will contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.
      (1) The name and address of the party(s) responsible for accomplishment of the pollution and erosion control plan.

[8] For purposes of this Opinion only, 'large wood' means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull channel width of the stream in which the wood occurs. See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

(2) Practices to prevent erosion and sedimentation associated with access roads, construction sites, equipment and material storage sites, fueling operations, and staging areas.

(3) A description of any regulated or hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.

(4) A spill containment and control plan with notification procedures, specific cleanup and disposal instructions for different products, quick response containment and cleanup measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

(5) Practices to prevent construction debris from dropping into any stream or waterbody, and to remove any material that does drop with minimum disturbance to the streambed and water quality.

ii. Inspection of erosion controls. During construction, monitor instream turbidity and inspect all erosion controls weekly, or more often as necessary, to ensure the erosion controls are working adequately.[9]

(1) If monitoring or inspection shows that the erosion controls are ineffective, mobilize work crews immediately to make repairs, install replacements, or install additional controls as necessary.

(2) Remove sediment from erosion controls once it has reached 1/3 of the exposed height of the control.

i. Heavy Equipment. Restrict use of heavy equipment as follows.

i. Choice of equipment. When heavy equipment will be used, the equipment selected will have the least adverse effects on the environment (*e.g.*, minimally-sized, low ground pressure equipment).

ii. Vehicle and material staging. Store construction materials, and fuel, operate, maintain and store vehicles as follows.

(1) To reduce the staging area and potential for contamination, ensure that only enough supplies and equipment to complete a specific job will be stored on site.

(2) Complete vehicle staging, cleaning, maintenance, refueling, and fuel storage in a vehicle staging area placed 150 feet or more from any stream, waterbody or wetland, unless otherwise approved in writing by NOAA Fisheries, except as stated below.

(a) Fuel storage locations within 150 feet of the OHWM shall have containment measures in place that meets or exceeds 100% containment.

[9] 'Working adequately' means that project activities do not increase ambient stream turbidity by more than 10% above background 100 feet below the discharge, when measured relative to a control point immediately upstream of the turbidity causing activity.

(b) No auxiliary fuel tanks are stored within 150 feet of the OHWM.

(3) Hazardous materials stored within 150 feet of the OHWM shall have containment measures in place that meets or exceeds 100% containment.

(4) Inspect all vehicles operated within 150 feet of any stream, waterbody or wetland daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected in the vehicle staging area before the vehicle resumes operation. Document inspections in a record that is available for review on request by the Corps or NOAA Fisheries.

(5) Before operations begin and as often as necessary during operation, steam clean all equipment that will be used below bankfull elevation until all visible external oil, grease, mud, and other visible contaminates are removed.

(6) Diaper all stationary power equipment (*e.g.*, generators, cranes, stationary drilling equipment) operated within 150 feet of any stream, waterbody or wetland to prevent leaks, unless suitable containment is provided to prevent potential spills from entering any stream or waterbody.

j. Site restoration. Prepare and carry out a written site restoration plan as necessary to ensure that all streambanks, soils and vegetation disturbed by the project are cleaned up and restored as follows. Submit a copy of the written site restoration plan to the Corps and to the Oregon State Habitat Office of NOAA Fisheries, at the address above, before beginning work below bankfull elevation.

i. General considerations.

(1) Restoration goal. The goal of site restoration is renewal of habitat access, water quality, production of habitat elements (*e.g.*, large woody debris), channel conditions, flows, watershed conditions and other ecosystem processes that form and maintain productive fish habitats.

(2) Streambank shaping. Restore damaged streambanks to a natural slope, pattern and profile suitable for establishment of permanent woody vegetation, unless precluded by pre-project conditions (*e.g.*, Hinkle Creek Spur Road).

(3) Revegetation. Replant area requiring revegetation before the first April 15 following construction. Use a diverse assemblage of species native to the project area or region, including grasses, forbs, shrubs and trees. Noxious or invasive species may not be used.

(4) Pesticides. Take of ESA-listed species caused by any aspect of pesticide use is not included in the exemption to the ESA take prohibitions provided by this incidental take statement. Pesticide use must be evaluated in an individual consultation, although

mechanical or other methods may be used to control weeds and unwanted vegetation.

(5) Fertilizer. Do not apply surface fertilizer within 50 feet of any stream channel.

(6) Fencing. Install fencing as necessary to prevent access to revegetated sites by livestock or unauthorized persons.

ii. Plan contents. Include each of the following elements.

(1) Baseline information. This information may be obtained from existing sources (*e.g.*, land use plans, watershed analyses, subbasin plans), where available.

(a) A functional assessment of adverse effects, *i.e.*, the location, extent and function of the riparian and aquatic resources that will be adversely affected by construction and operation of the project.

(b) The location and extent of resources surrounding the restoration site, including historic and existing conditions.

(2) Goals and objectives. Restoration goals and objectives that describe the extent of site restoration necessary to offset adverse effects of the project, by aquatic resource type.

(3) Performance standards. Use these standards to help design the site restoration plan and to assess whether the restoration goal is met. While no single criterion is sufficient to measure success, the intent is that these features should be present within reasonable limits of natural and management variation.

(a) Bare soil spaces are small and well dispersed.

(b) Soil movement, such as active rills or gullies and soil deposition around plants or in small basins, is absent or slight and local.

(c) If areas with past erosion are present, they are completely stabilized and healed.

(d) Plant litter is well distributed and effective in protecting the soil with few or no litter dams present.

(e) Native woody and herbaceous vegetation, and germination microsites, are present and well distributed across the site.

(f) Vegetation structure is resulting in rooting throughout the available soil profile.

(g) Plants have normal, vigorous growth form, and a high probability of remaining vigorous, healthy and dominant over undesired competing vegetation.

(h) High impact conditions confined to small areas necessary access or other special management situations.

(i) Streambanks have less than 5% exposed soils with margins anchored by deeply rooted vegetation or coarse-grained alluvial debris.

(j) Few upland plants are in valley bottom locations, and a continuous corridor of shrubs and trees provide shade for the entire streambank.

(4) Work plan. Include a written work plan as part of the site restoration plan with sufficient detail to include a description of the following elements, as applicable.

(a) Boundaries for the restoration area.
(b) Restoration methods, timing, and sequence.
(c) Water supply source, if necessary.
(d) Woody native vegetation appropriate to the restoration site.[10] This must be a diverse assemblage of species that are native to the project area or region, including grasses, forbs, shrubs and trees. This may include allowances for natural regeneration from an existing seed bank or planting.
(e) A plan to control exotic invasive vegetation.
(f) Elevation(s) and slope(s) of the restoration area to ensure they conform with required elevation and hydrologic requirements of target plant species.
(g) Geomorphology and habitat features of stream or other open water.
(h) Site management and maintenance requirements.

(5) Five-year monitoring and maintenance plan.

(a) A written schedule to visit the restoration site annually for 5 years or longer as necessary to confirm that the performance standards are achieved. Despite the initial 5-year planning period, site visits and monitoring will continue from year-to-year until the Corps certifies that site restoration performance standards have been met.
(b) During each visit, inspect for and correct any factors that may prevent attainment of performance standards (*e.g.*, low plant survival, invasive species, wildlife damage, drought).
(c) Keep a written record to document the date of each visit, site conditions and any corrective actions taken.

3. To implement reasonable and prudent measure #3 (protection of in-water work area from the force of flowing water) the Corps shall ensure that during in-water work (work below the OHWM), ensure that the work area is well protected from the force of the active flowing stream with a coffer dam (constructed of sand bags, sheet pilings, inflatable bags, *etc.*) or similar structure, to minimize the potential for sediment entrainment. All coffer dams will be of sufficient height to not be inundated during high flows. The coffer dam may divert water around the work site and does not necessitate complete isolation.

[10] Use references sites to select vegetation for the mitigation site whenever feasible. Historic reconstruction, vegetation models, or other ecologically-based methods may also be used as appropriate.

4. To implement reasonable and prudent measure #4 (minimize loss of instream habitat), the Corps shall ensure that:

    a. Boundaries of the clearing limits associated with site access and construction will be flagged to prevent ground disturbance of riparian vegetation, wetlands, and other sensitive sites beyond the flagged boundary.
    b. During excavation, native streambed material will be stockpiled out of the two-year floodplain for later use in back-filling the trenches used to construct coffer dams.
    c. Alteration or disturbance of streambanks and existing riparian vegetation will be minimized. Bank protection material shall be placed to maintain normal waterway configuration whenever possible.
    d. Measures will be taken to prevent any debris from falling within the boundaries of the OHWM. Any material that falls within this area will be removed in a manner that has a minimum impact to the riparian area, streambed and water quality.

MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Background

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of essential fish habitat (EFH) descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat, "waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate. "Substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities. "Necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;

- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;

- Federal agencies shall, within 30 days after receiving conservation recommendations from NOAA Fisheries, provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH.

Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

Identification of EFH

Pursuant to the MSA, the Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed fisheries within the waters of Washington, Oregon, and California. Designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line, and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km) (PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other waterbodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years) (PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border (PFMC 1999).

Detailed descriptions and identifications of EFH are contained in the fishery management plans for groundfish (PFMC 1998a), coastal pelagic species (PFMC 1998b), and Pacific salmon (PFMC 1999). Casillas *et al.* (1998) provides additional detail on the groundfish EFH habitat complexes. Assessment of the potential adverse effects to these species' EFH from the proposed action is based, in part, on these descriptions and on information provided by the Corps and the ODFW.

Proposed Actions

The proposed actions are detailed above in this Opinion. The action area is also defined above, and includes the construction area at mile 0.08 of Hinkle Creek and 100 feet downstream from the work site. The action area includes habitats that have been designated as EFH for various life-history stages of coho salmon and Chinook salmon.

Effects of Proposed Action

As described in detail in the Opinion, the proposed action may result in adverse effects to habitat parameters and forage. These adverse effects are:

- Increased turbidity downstream during construction
- Potential of chemical contamination
- Loss of habitat function
- Loss of stream processes

Conclusion

NOAA Fisheries concludes that the proposed action may adversely affect EFH for coho salmon and Chinook salmon.

EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. While NOAA Fisheries understands that the conservation measures described in the biological assessment will be implemented, it does not believe that these measures are sufficient to address the adverse impacts to EFH described above. The terms and conditions issued with the conference opinion, above, would address the long-term adverse effects this project has on EFH, specifically 1 (b-c), 2 (a-j), 3, and 4. Accordingly, NOAA Fisheries recommends that the Corps implement these as recommendations to minimize the potential adverse effects to EFH.

Statutory Response Requirement

Pursuant to the MSA (§305(b)(4)(B)) and 50 CFR 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

Supplemental Consultation

The Corps must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920(k)).

DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

Section 515 of the Treasury and General Government Appropriations Act of 2001 (Public Law 106-554) ("Data Quality Act") specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the Opinion addresses these DQA components, documents compliance with the Data Quality Act, and certifies that this Opinion has undergone pre-dissemination review.

Utility: This ESA section 7 consultation on the Hinkle Creek Bank Revetment Project, in Douglas County, Oregon, concluded that the action will not jeopardize the continued existence of OC coho salmon. Therefore, the Corps may authorize that action. Pursuant to the MSA, NOAA Fisheries provided the Corps with conservation recommendations to conserve EFH.

The intended users of these consultations are the Corps and the applicant. Clients of the Douglas County Public Works and the American public will benefit from the consultation.

Individual copies were provided to the above listed entities. This consultation will be posted on the NOAA Fisheries NW Region web site (http://www.nwr.noaa.gov). The format and naming adheres to conventional standards for style.

Integrity: This consultation was completed on a computer system managed by NOAA Fisheries in accordance with relevant information technology security policies and standards set out in Appendix III, "Security of Automated Information Resources," Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

Objectivity:

Information Product Category: Natural Resource Plan.

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NOAA Fisheries ESA Consultation Handbook, ESA Regulations, 50 CFR 402.01 et seq., and the Magnuson-Stevens Fishery Conservation and

Management Act (MSA) implementing regulations regarding Essential Fish Habitat, 50 CFR 600.920(j).

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the literature cited section. The analyses in this biological opinion/EFH consultation contain more background on information sources and quality.

Referencing: All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NOAA Fisheries staff with training in ESA and MSA implementation, and reviewed in accordance with Northwest Region ESA quality control and assurance processes.

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